of Otumpa (province of Tucuman, South America), an iron weighing thirty tons; of Durango (Mexico), nineteen tons; and of Cranbourne, Australia (now in the British Museum), which weighs over three tons.

The Nejed iron, the largest which has been seen to fall, weighs nearly 130 pounds.

Considering the very considerable number of falls which have taken place, the number of irons which have been *seen to fall* is remarkably small. They are as follows:—

Agram, 1751.
Tennessee, 1835.
Braunau, 1847.
Victoria West (South Africa) 1862.
Nejed, 1863.
Nidigullam (Madras) 1870.
Rowton, Shropshire, 1876.
Mazapil, 1885.
Cabin Creek, 1886.

The following table contains a list of some of the larger meteorites, besides those mentioned above, which have been found from time to time, with the locality of their fall and their weights in grammes (1000 grammes = 2·2 pounds avoirdupois (nearly), and 1,018,181 grammes (nearly) = 1 ton):—

Siderites—	Weight in grammes.
Bahia, Brazil...	6,350,000
Charcas, Mexico	780,000
Tucuman, Argentine Republic, South America	637,000
The Butcher Iron, Desert of Bolson de Mapimi, Mexico	253,632
Toluca Valley, Mexico	91,007
Cocke County (Cosby's Creek), Tennessee, U.S.A.	52,325
Rancho de la Pila, nine leagues east of Durango, Mexico	46,512
Obernkirchen, near Bückeburg, Germany	35,366
Carthage, Smith County, Tennessee, U.S.A.	24,570
Siderolites—	
Imilac, Desert of Alacama, South America	227,328
Estherville, Emmet County, Iowa, U.S.A.	116,487
Aërolites—	
Wold Cottage, Thwing, Yorkshire	20,111
Pultusk, Poland	18,007
Butsura (Qutahar Bazaar), Bengal, India	13,071
Knyahinya, near Nagy Berezna, Hungary	13,053
Durala, N.W. of Kurnal, Punjab, India	12,588
Dhurmsala, Kangra, Punjab, India	12,407
Nellore (Yatoor), Madras, India	11,287

Classification of Meteorites.

Meteorites have been arranged into three classes: first, masses of iron alloyed with nickel, which have been called by Maskelyne, aero-siderites (*aer*, air, and *sideros*, iron) or briefly siderites; secondly, those which are almost wholly composed of stone, and called aërolites (*aer*, air, and *lithos*, stone); and, thirdly, those which are composed of stone and iron in more or less equal quantities, consisting of a spongy mass of iron interlaced with stony matter like that of the aërolites, and called siderolites or meso-siderites.

M. Daubrée's general classification of meteorites is as follows:—

- Meteorites
  - Containing metallic iron
    - Not containing stony matter ... ... Holosidères
    - Containing iron with stony matter
      - The iron constituting a matrix which encases stony grains ... ... Syssidères
      - The iron existing in the form of grains among stony matter ... ... Sporadosidères
  - Not containing metallic iron ... ... Asidères

This brings us to consider the chemistry of these messengers from the celestial spaces. J. NORMAN LOCKYER.

(*To be continued.*)

THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

AT the present time, when so much is being said and done in connection with technical education, and so many new institutions are being founded, it may interest the readers of NATURE to learn how some old ones have been reorganized to enable them more adequately to meet the requirements of the times. The Glasgow and West of Scotland Technical College was founded by an Order of the Queen in Council, dated November 26, 1886, according to a scheme framed by the Commissioners appointed under the provisions of the Educational Endowments (Scotland) Act, 1882, whereby Anderson's College, the Young Chair of Technical Chemistry in connection with Anderson's College, the College of Science and Arts, Allan Glen's Institution, and the Atkinson Institution, were placed under the management of one governing body. A considerable amount of interest is attached to the histories of these institutions, of which a few of the chief dates may be mentioned.

Anderson's College was founded by John Anderson, M.A., F.R.S., Professor of Natural Philosophy in the University of Glasgow, who, by his will, dated May 7, 1795, bequeathed the whole of his property, with a few trifling exceptions, "to the public for the good of mankind and the improvement of science, in an institution to be denominated 'Anderson's University,' and to be managed by eighty-one trustees." The endowment included a general museum, library, and valuable philosophical apparatus; and the intention of the founder was to provide a complete circle of liberal and scientific education suitable for all classes, and adapted to the wants and circumstances of the period, but the design was never fully carried out. The Andersonian Institution or University was incorporated on June 9, 1796, and it has numbered among its Professors some distinguished men. Of these may be named Dr. Garnett, Dr. George Birkbeck, Dr. Andrew Ure, and Thomas Graham, who afterwards became Master of the Mint. The Medical School attained considerable importance, attracting students from all parts of the country, and sending forth a number of medical practitioners—many of whom have attained to eminence, and a few to great distinction, in their profession. On the foundation of the Glasgow and West of Scotland Technical College, the Medical School of Anderson's College was placed under a separate governing body, and provision is being made for its removal to other buildings.

In the year 1870, Dr. James Young, of Kelly and Durris, settled in trust the sum of £10,500 for the purpose of establishing a Chair of Technical Chemistry, to be called "The Young Chair of Technical Chemistry in connection with Anderson's University;" and on the organization of the Glasgow and West of Scotland Technical College, Dr. Young's testamentary trustees conveyed to the governors of the College the Young Laboratory Buildings, situated in John Street, Glasgow. Various other endowments were given at different times to Anderson's University. In 1861, Mr. John Freeland, residing at Nice, mortified the sum of £7500 to secure the delivery, annually or periodically, of "separate courses of popular lectures on the three following subjects, or any one of them, namely (1) Chemistry; (2) Mechanical and Experimental Physics; and (3) Anatomy and Physiology," and in 1871 he made a further gift of £5000 to the University. In 1866, Mr. William Euing, insurance broker in Glasgow, settled in trust the sum of £3000 for the purpose of securing the delivery of courses of popular lectures in Anderson's University upon the history and theory of music, and upon the lives of eminent musicians; and also upon such branches of acoustics as may be connected with and illustrate the science and practice of music. By his will he bequeathed his whole musical library to the University, along with £1000 for the purpose of building a fire-proof room for its accommodation, besides the sum of £200 to print a catalogue. Mr. Euing also left the University the sum of £6000 for general purposes; and £150, the interest of which is to be applied in providing prizes in connection with the Lectureship on Music instituted by him. In 1876, through the liberality of a few friends, a Chair of Applied Mechanics, with a suitable endowment, was founded.

The College of Science and Arts was the direct successor of the Mechanics' Institution, which owed its origin to the popular lectures begun in 1800 by Dr. Birkbeck in Anderson's University, and continued by his successor. In 1823 a number of students attending these mechanics' classes resolved to sever their connection with Anderson's University, and thereafter

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formed the Glasgow Mechanics' Institution, of which Dr. Birkbeck became the first President. He also became President of the Mechanics' Institution in London, which was opened in November 1823, on the same plan as that of Glasgow, after which the system rapidly extended over the Kingdom. In 1879 the Institution was reorganized, and two years later the name was changed to "College of Science and Arts, Glasgow," from which time the commercial classes were discontinued, and the College classes entirely devoted to the teaching of science and its applications, more especially to engineering.

Allan Glen's Institution was founded under the will of Allan Glen, wright in Glasgow, dated 1847-48, and was intended to afford gratuitous education to about fifty boys, sons of tradesmen or persons in the industrial classes of society. In 1876 the Institution was reorganized, and it became a high-class secondary school for boys who are intended for industrial and mercantile pursuits. The trustees fitted up a laboratory, lecture-room, apparatus-room, and workshops in the school, which soon became well known for the good secondary technical instruction which it afforded.

The Atkinson Institution never really had an active existence, and the interest of the money which was left by Thomas Atkinson, bookseller and stationer in Glasgow, is now to be used in providing bursaries for the students attending the Glasgow and West of Scotland Technical College.

Provision is made under the scheme for the further endowment of the College by annual subsidies out of the funds of the Glasgow City Educational Endowments Board and the Hutcheson's Educational Trust. These subsidies are fixed in the special schemes for these Boards at not less than £800 and £1400 respectively.

By the scheme drawn out by the Educational Endowments (Scotland) Commissioners, the institutions above referred to have been amalgamated and placed under the management of one governing body, which has been selected from among the representatives of the old institutions and from various public bodies in Glasgow. The problem which the governing body had to solve was to arrange a number of hitherto competing and to a certain extent opposing institutions into something like a homogeneous unity. Of course under the circumstances it is not to be expected that a perfect scheme can at once be evolved, but on the whole it will be found that a fairly good arrangement has been made. Allan Glen's School is being extended, and is intended to be a secondary technical school for boys to sixteen years of age; while Anderson's College, the Young Chair, and the College of Science and Arts form the College proper. For entrance to this, students under sixteen years and all those who intend to go in for any of the diploma courses are required to pass an examination, but this is not so difficult as to exclude those who are likely to benefit by the work of the College classes. The diploma of the College will be awarded in the following departments of study: (1) Civil Engineering; (2) Mechanical Engineering; (3) Naval Architecture; (4) Electrical Engineering; (5) Architecture; (6) Chemical Engineering; (7) Metallurgy; (8) Mining Engineering; (9) Agriculture. Each course extends over three years, the subjects of instruction in the first year being common to all, while in the second and third years the subjects are arranged to suit the special departments selected by the students. There are three sets of examinations for the diploma: (1) at the end of the first session, in the scientific subjects of the first year's course; (2) at the end of the second session, in the modern language and the general subject selected by the student; (3) at the end of the third session, in the main subject of the department selected by the candidate. This examination will be partly by written papers and partly oral, and will be of such a nature as not only to test the candidate's knowledge of the main subject, but also of the various subsidiary subjects included in the course. When the subject admits of it, laboratory work will form an essential part of the examination. Lastly, each candidate will be required to work out a design, with specifications and estimates, from data which will be supplied. Such examinations should test a student's real knowledge of a subject, and his power of application to the solution of the problems which arise in every-day life.

The evening classes of the College are conducted chiefly according to the arrangements of the Science and Art Department, and of the City and Guilds of London Institution, and they are arranged in the following courses: (1) Mechanical Engineering; (2) Naval Architecture; (3) Electrical Engineering; (4) Architecture; (5) Building Construction; (6) Mining; (7) Metallurgy; (8) Agriculture; (9) Chemical Industries; (10) Textile Industries; (11) Art Industries; (12) Commerce. In each of these departments there are two grades of certificates, senior and junior, the latter being within the reach of all apprentices. Students who have obtained the senior certificate for the evening classes may obtain the diploma for the day curriculum by attending the third year's course in the corresponding department of the curriculum and passing the necessary examinations. In connection with both the day and evening classes of the College, there are a considerable number of scholarships and bursaries; and in addition the governors have power to remit in whole or in part the fees of artisans and others who are desirous of attending the day classes, and require aid for obtaining the education therein provided. In order to encourage systematic study this privilege will only be afforded to students who have obtained the senior certificate of the College. Arrangements are thus made which should enable all really deserving students to pass from the lowest evening class to the highest classes at the College, or the University; for the students who obtain bursaries will have the option of going to the University or of remaining at the Technical College.

Allan Glen's School is being considerably enlarged, and new class-rooms, drawing-offices, and workshops are being added, and the curriculum of the school has been re-written to suit these enlargements. The elementary department is being gradually curtailed, and will ultimately be dropped, so as to allow of the whole space being available for the secondary department. In this department there are five classes, in the first three of which are given the elements of a good general education, with the scientific side more fully developed than is the case in ordinary schools. In the fourth and fifth classes the work is of a more special nature, and in the last year the attention of the students is directed either to mechanical and electrical engineering or to chemistry. By the time they have completed the course, they ought thus to be in a position to enter on their apprenticeship in the workshops with advantage to themselves, as well as to their employers.

During the past year the number of students who attended the day classes of the College was 168, and the evening classes 1771, and the number of scholars in Allan Glen's School was 439, or a total of 2378, which shows that technical education is being taken advantage of to a considerable extent in Glasgow. One good feature in the arrangement of the College is that advantage is taken of other institutions in so far as their classes can be utilized for the different curricula. For instance, in the day classes the University, and in the evening classes the Athenæum and School of Art and Haldane Academy, make up some of the deficiencies of the Technical College. The resources of each institution are thus fully utilized, and there is no unnecessary waste of energy or money in maintaining duplicate classes. HENRY DYER.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

DEPARTMENT OF SCIENCE AND ART.—The following is the list of candidates successful in the competition for the Whitworth Scholarships and Exhibitions, 1888:—1. Scholarships, tenable for three years (£125 a year each): Jas. Whitaker, 22, student, Nelson, Lancashire; James Mair, 22, engineer, Glasgow; C. Humphrey Gilbert, 22, engineer student, Nottingham; John Calder, 21, mechanical engineer, Glasgow. 2. Exhibitions, tenable for one year (£100 each): Harry Bamford, 22, engineering student, Oldham; John Harbottle, 21, draughtsman, Newcastle-on-Tyne; John Taylor, 21, engineer, Glasgow; John Dalglish, 24, mechanical draughtsman, Paisley; Archibald S. Younger, 23, engineer student, North Shields; Joseph Butterworth, 22, engineer, Rochdale; George A. Burls, 21, mechanical draughtsman, Greenwich; Charles H. Kilby, 20, engineer apprentice, Crewe; Charles R. Pinder, 21, engineer student, Bristol; Robert Dumas, 22, engineer, Glasgow; Charles L. E. Heath, 21, fitter apprentice, Devonport; Charles Forbes, 21, engine fitter apprentice, Glasgow; Benjamin Young, 23, electrical engineer apprentice, Belfast; Edward Y. Terry, 23, engine fitter, Devonport; William J. Collins, 23, draughtsman, Woolwich; John H. B. Jenkins, 21, assistant analytical chemist, New Swindon; John I. Fraser, 24, apprentice engineer, Glasgow; Henry E. Cheshire, 24, fitter, Crewe; Oscar Brown, 23, pattern maker, Plumstead;

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